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Citation for published version:

Sinclair, C 2017, 'You've got mail: Tracking and framing academic lives', *Knowledge Cultures*, vol. 5, no. 2, 4, pp. 49-64. <https://doi.org/10.22381/KC5220174>

Digital Object Identifier (DOI):

[10.22381/KC5220174](https://doi.org/10.22381/KC5220174)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Knowledge Cultures

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You've got mail – tracking and framing academic lives

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Disclosure statement: this research is not associated with any financial interest or other benefit.

Abstract

Email has become a pervasive feature of academic life. Its impact on academic time will be immediately familiar to contemporary readers; simultaneously, however, academic work associated with email may be hidden from official recognition. Awareness of this contradiction stimulated a proposal to investigate email use over a year of an academic's life to explore tensions among administrative, research and teaching tasks, using third-generation activity theory to frame the findings. The proposed investigation proved to be too ambitious and unworkable. However, earlier and contemporary forms of Cultural Historical Activity Theory (CHAT) may still illuminate both the reasons for failure of the study and how email has contributed to the expansion and transformation of the activity system of higher education. A revised study and a comparison with an alternative account of "overload" – files and other artefacts in an attic – suggest that counting and categorizing emails would miss the crucial issues of the object of higher education and internalization of responses to neoliberal and other imperatives. The study concludes with a need to detach from a personal response to email and recognize its contribution to collective practices and their implications, including resistance and solidarity in the face of excessive and hidden workloads.

Keywords: Cultural Historical Activity Theory (CHAT); higher education; hidden labour; overload; transformation; internalization

Introduction: learning from failure

When I first encountered email in the 1990s it helped me to get through my tasks more quickly; now it slows them down. Something has changed over time in the way email mediates what I – and my colleagues, students and others – actually do in a university context.

I hypothesized that categorizing and reviewing an academic's emails over an academic year might reveal other tensions and contradictions within and across university administration, research and teaching. I hoped that my own experience of this, taken along with other studies, might contribute to a framework for identifying pressure points and opportunities for synthesis of different aspects of academic life. I planned to use Cultural Historical Activity Theory (CHAT) – especially as espoused by Engeström (1999) – to develop this framework because of his emphasis on contradictions and tensions as sources of societal change. CHAT's emphasis on complex social interaction involving rules, division of labour, exchange and mediation seemed clearly relevant to my quest to explain email overload.

In the event, the proposed study proved to be overambitious and unrealistic. The factors that made it so, and reflections on the thought experiment leading to the hypothesis, provide an alternative route for exploring email's mediating role in distributed professional practices in universities. A final analogy with

clearing out an academic's attic suggests that there may be some precedents from pre-internet times that relate to this situation.

I still found CHAT to be a useful way of framing my discussion, drawing not only on Engeström but also on the work of his antecedents: Vygotsky (1896-1934) and Leont'ev (1903-1979). A very brief summary of CHAT's key features follows, to elucidate its potential. By positioning email in a cultural-historical context, I can then offer an explanation for my initial (failed) plan and the more modest one that followed.

Cultural Historical Activity Theory (CHAT): its potential for exploring email overload

Sometimes simply called activity theory, the approach described here offers useful reference points for exploring relationships between humans, what they do, and how it is mediated. The technical use of the word "activity" developed from Vygotsky's insights about the role of mediation – through artefacts and tools, including language – in the higher forms of thinking and action (Vygotsky, 1978). A key focus is the material and mental objects of activity and how these are transformed through internal contradictions created by human actions over time. The cultural-historical tag highlights the dialectical shaping effects of everything we do, individually and together. Despite its pre-internet origins, CHAT would seem to offer an appropriate theoretical frame for changes in how email affects practice.

CHAT has itself been subject to the kind of transformative social processes that it seeks to analyze, and can be difficult to pin down. In claiming that it is a unified theory, as opposed to a set of theories, Sannino et al (2009) invoke the basic structure of activity proposed by Leont'ev (1981) which I have summarized in Figure 1.

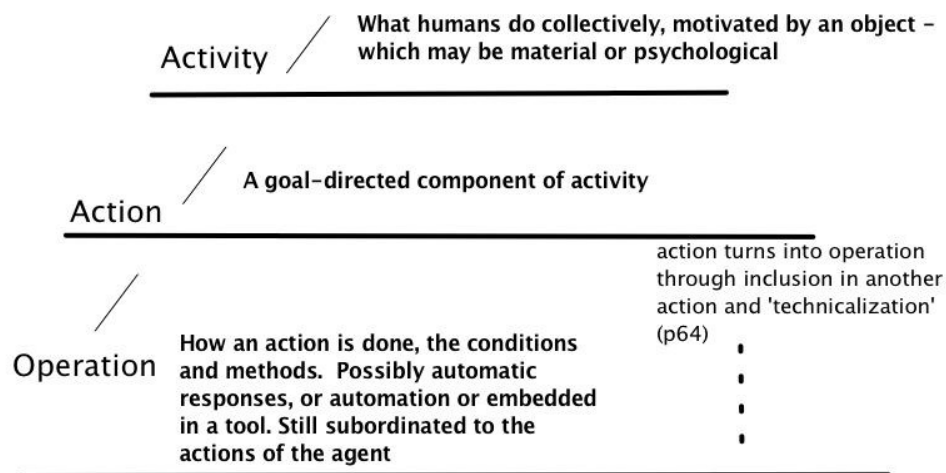


Figure 1: Leont'ev's model of the general structure of activity. Derived from his description (Leont'ev, 1981, pp. 41-65)

The fundamental idea of activity theory is that human activity is a collective process, oriented at an object which supplies the motive for the activity (Leont'ev, 1981). It is mediated through goal-driven actions subordinated to the main activity. Leont'ev illustrates this with the activity of a hunt, with the object of food. A division of labour requires one person to whittle a stick for a weapon, another to beat the bushes, others to actually kill the animal or deal with the carcass etc. The object of hunting is both material and psychological – there has to be some kind of shared meaning for what the group of people are doing together.

An activity cannot exist without a chain of actions (Leont'ev, 1977). Some of these actions may also be subordinated to other objects and activities and may even be spoken of as activity systems themselves. For example, weapons-making has evolved from an action in a hunt or a battle into a commercial activity, with the object of making money.

The operations level of analysis contains former actions subsumed into newer ones. Whittling a stick – once an action in itself – becomes with practice an operationalized method in the action of making a weapon. Ultimately, it is likely to be fully “technicalised” and achieved through automation, Leontev uses the action of changing gear in a car to illustrate this progression through operationalizing an action to automating it through technology.

The object of activity both shapes and is shaped by the activity through internal contradictions and tensions and through changes brought in through different participants and over time. Engestrom, in his third generation model of activity theory (Vygotsky and Leont'ev providing the first two), highlights the

need to consider this internally dynamic system as a whole. His famous “triangles” draw to attention the sites where tensions and contradictions may occur internally in the activity system. In later works, he considers points of disruption that happen across activity systems as well as within them.

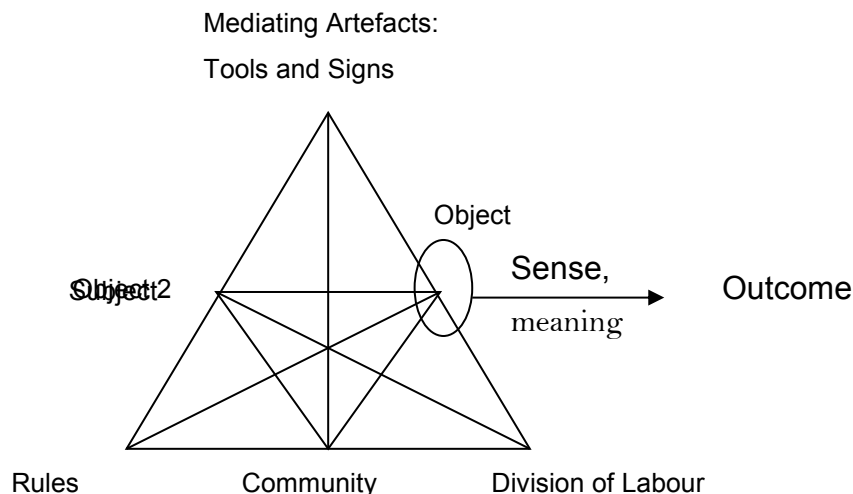


Figure 2: The structure of a human activity system (Engeström, 1999)

Email is by its very nature a form of mediation that brings to an individual the intentions and objects of other individuals, groups, teams, collectives, professions, and commercial organisations. In responding to email, an individual participates in the emergence of shared activity contributing to such social groups. In this sense, the individual “assimilates the experience of humankind” (Leont'ev, 1981, p. 58), including the practices and meanings embedded in email as it has developed over time.

Email’s development in a neoliberal context

At the same time as email emerged in universities, critical writers in the sector were increasingly using the word “neoliberal” to refer to a managerialist, performance-based culture that appears to suggest business-like competition as the main object of higher education. Considered in the light of Engeström’s model in Figure 2, we can see opportunities for tensions between the community and its shared objects and how these objects might be threatened by internal contradictions. The neoliberal culture did not eradicate previous or alternative objects of university-based activity, but co-existed with them, resulting in tensions and contradictions for academics. In the humanities and social sciences, for example, there are tensions between a social justice agenda and a market-oriented one (Mann, 2008); indeed, there is evidence of a need for actions to comply with both of these in my current inbox.

The word “tension” indicates a concern not simply about which agenda to deal

with next; there can be questions of identity and integrity when making those choices. In a neoliberal context there is a tension “between metric performances and authentic and purposeful relationships” (Ball, 2003, p. 223). With aspects of email, there is a pressure to be seen to respond in a “timely” fashion as well as to engage in important collegial dialogues that might have an impact on genuine human problems.

For all but a few pioneering academics, email emerged in the early to mid 1990s as a novel convenient way to get in touch with employees, colleagues, friends and businesses. For asynchronous connections, it replaced letters and memos; for synchronous, it reduced the need for phone calls and conversations, including informal ones. In these roles, it appeared to save a lot of time. As has been the case with many new technologies, its potential influence was underestimated at its introduction – one writer reports that initially it was expected to take up an hour each day (Weiss Roberts, 2104). She now finds that it saturates all waking moments, along with other forms of technological connection.

How did email change from being a time saver to permeating so much of every academic’s daily life? My father retired as a university professor in 1989 and never sent an email in his life, despite being an early user of computers. He did still have problems with information overload though, and I return to this at the end of the paper. The activity of higher education was surely mediated in different ways only 30 years ago, yet familiar aspects persist through our buildings, traditions, organizational structures, and indeed many of our dialogues and actions as individuals apparently working towards a common object. Email carries some of our former actions; it also creates new ones.

There is already some literature on overload from email both in business and in academic life. Pignata et al (2015) cite a range of papers recording factors associated with email use that lead to workplace stress, including its disruptive nature and the use of excessive monitoring. The authors’ own investigation into pressure points highlights not only volume but also issues to do with unnecessary emails and expectations of quick responses. They conclude that “email overload is a salient feature of work life for university employees” (Pignata et al., 2015, p. 170). In addition, they recommend staff training and organizational protocols for improving email practices. In an environment already overloaded with organizational protocols, however, this may need careful thought.

Examples of a human activity might be hunting (motivated by food), driving (motivated by the need to travel), or higher education (motivated by the need for critical transformation of students’ knowledge, thinking and being). Of course, the objects might be differently worded or even actually different for different people: for example self-preservation, status, or profit-making respectively.

What can we say about the actions that have been transformed and mediated through use of email as a tool? The action of sending a memo (embedding information and/or instruction) is still there, but there are so many other potential actions and interpretations of them there too, along with changed conditions, especially relating to time and duration. A student asking a question after a class involves an action that can now happen at any time rather than in the five minutes immediately following a lecture.

In the activity system of higher education, email is a mediating tool serving several agents, with different immediate intentions or goals, some of which may be in conflict, or even invisible. Email thus has played a part in the dialectical process of transformation of universities through internalization and externalization of the ways in which higher education is conducted. In that transformation, email is an artifact or “a history in the present” (Fenwick, Edwards, & Sawchuk, 2011, p. 73) that shapes practice.

In its own transformation across different contexts, email has been seen (among other things) to: remove the “absence” of connection between sending and delivery of a message, thus collapsing time (Eriksen, 2001), create invisible audiences through blind copying and archiving (McKenna, 2005), increase hierarchies and marginalization (Fominaya, 2015). These arguments share a suggestion that email not only shapes our actions but also has a concealing effect – an issue that has also been identified in relation to academic labour through managerial rhetoric around academic practices involving technology (Hayes, 2016).

The changing relationships highlighted by these authors will inevitably be exacerbated in institutions such as universities where email is used to pass on regulatory and exhortatory messages. Yet many of the papers on academic life that refer to email bring out the individual’s sense of responsibility for their own poor management of the technology that has now moved a long way from its 1990s origins as a novel and convenient way of keeping in touch with people. This paper also contributes to a certain extent to this sense of self-deprecation, but moves into a more positive territory of exposure of hidden tasks and collapsed durations, and a search for constructive forms of response.

A rationale for investigating email now

At the turn of the millennium, Eriksen warned of effects of “*information lint*” (Eriksen, 2001, p. 118): fragmented information-based tasks that require attention and thought. Replying to e-mail is his first example. Something else always needs to be done before an academic can tackle a major project. Some emails do not warrant a simple reply, but provide a need for action for their recipient. The accumulation of such tasks means that many major, speculative or blue skies projects just never get done or not completely. Eriksen refers to “unintended consequences” of our acceleration of time through technology – reporting on the disappearance of the idea of “duration” leading to fragmentation and loss of the right to be “unavailable”. In the years since he wrote this, the exponential growth of this process has continued, making more poignant the suggestion that we might have lost something in the compression:

...if the entire culture is based on extreme speed and particular, agreed-upon ways of measuring efficiency, **and the opposition disappears into the dark holes of academia** and high culture because it is unable to catch up, then it is in no way certain that a lot of people would notice the difference.

(Eriksen, 2001, p. 153, emphasis added)

Keeping academics busy “catching up” with institutional forms of “information lint”, such as compliance with the need to plan, record, store, review, and evaluate all aspects of their teaching and research lives is surely a good way to ensure that they cannot devote any thinking time to challenge the status quo or engage in potentially dangerous ideas or opposition. Taken singly, each email exhortation towards compliance with institutional regulations, good practice, or quality assurance can be recognized for its fairness, reasonableness and its appropriate level of accountability. Taken together, the email deluge serves to create a metaphorical weight that leads to anxiety and overwork in susceptible people, and there seem to be many academics who fall into this category. Such levels of accountability are associated with a neoliberal emphasis on performativity and deprofessionalisation of academics (Olsson & Peters, 2005).

Methods for managing email – and for researching the email problem

It is perhaps not surprising that papers that refer to the problem of email overload contain a plea for help for academics to manage this. I had hoped that in investigating my emails through an activity theory lens, I would simultaneously write a paper and do some overdue housekeeping. However, although the overload does contain many unnecessary emails that can be annoying, getting rid of them does not remove the required actions embedded in others.

One issue for a method for coping with this problem (and researching it) is how the material situation of an email overload is internalized by those affected. A personal observation is that I suspect that I am physically unable to comply with everything I have to do or indeed want to do; a necessary key skill is to work out where the priorities should lie. There may be tensions and contradictions between the requirements and what the academic feels should be the priorities: for example, between completing a piece of academic research when there are emails about the workload model and emails from anxious students. The implication is that the individual has to find time to do them all or cope with the consequences.

I am using my own reflections, framed through CHAT, on the email overload and potential consequences of non-compliance and hope that sharing this provides a useful stimulus for colleagues to do similar. The focus of my study is a collection of around 14,000 incoming emails in the academic year 2014-15. As seems to be the case with management of email, and indeed with other reports of similar attempts to capture the process (for example, Drake, 2015), there was initially a planned method and secondly a very much reduced set of actions, particularly in relation to the level of detail that I had hoped would be enlightening. I have included a section on each.

I have been in my current institution for four years. I have amassed 50,000 emails in my in-tray in that period, despite deleting some emails immediately and having occasional purges of some types of email, for instance any from Amazon. All of the emails have been opened and read; many have been flagged for later attention (something I did not feel the need to do until about a year ago). Many of this large number are junk and should be deleted, but some are still useful and I use email as an extended memory, for instance to locate: technical instructions; records of events; students' actions, concerns or contact details

This problem may be even more exacerbated in other spheres of activity, such as business or journalism. Rao (2015) reports having 584,341 *unread* emails. If my own collection were to reach such proportions, I would not be able to function – I already find that my retrieval systems are less effective than they were.

Every summer, I determine to take a whole day or ideally two to do some “housekeeping” on my email and my computer files. I have never managed this; there has never been a day when I haven’t had to do something else, often involving answering numerous emails. As other writers on the topic have found, answering emails has spilled into weekends, evenings, early mornings and holidays. My experiences recorded here also demonstrate to me that a day would have been unlikely to be sufficient for what I planned anyway.

Initial plan

The plan was to sort these 14,000 emails into five folders: Academic, Research, Administration, Other and Junk. The first three were to be the main focus of the study; the extent and themes of Other would also be taken into account as part of the analysis. Junk was to be collected initially to see whether a distinction might be made from Other and the decision as to whether they warranted investigation postponed until the collection had been made.

My plan included identification of further categories to the five initial ones. I was particularly keen to find examples to investigate the reasons for the level of anxiety I felt over email. I recognized that any single email might have several themes: I myself am guilty of entitling an email “various”, a habit I will now change because of insights from the current study.

I intended to use software to code and analyse the topics from a CHAT perspective. I wondered about the dominance of emails on particular issues, the relative preponderance of research, teaching and administration and the numbers of emails kept that were not necessary. More than quantitative issues, though, I was interested in the insights offered by emails associated with time pressures, risk avoidance and performance.

A revised plan, influenced by other authors

Time set aside to work on the task and writing it up kept disappearing for reasons already discussed in terms of Eriksen’s “information lint”, though this is not the main reason for the failure of the project. That was still associated with time: the duration of a single act of coding and the accumulation effect of 14,000 of these.

Additional background reading helped me to see that what I had planned was not going to be possible. Pat Drake’s paper describing the use of an email collection to explore women and leadership in education provided an illustration of the same dilemma. “The large volume of over 6000 emails in itself was such as to deny the possibilities of meaningful categorisation” (Drake, 2015, p. 148). This made me think that even if I just spent 30 seconds on coding each message this would entail many hours of work. Like Drake, “I did not need the emails to remember the angst” (Drake, 2015, p. 154); nor, I decided, did I need to put their themes into relevant software to make judgements about what was happening as a result of email overload.

A more contained study of email (Weiss Roberts, 2104) shows it was possible to categorise the sources of 235 emails in a 48 hour period, yet still the author (a physician and educator) immediately concludes “Perhaps it is more accurate to say that each day in the physician’s life is continuous ‘e-presence’ and ‘e-distractions,’ combined with other real-time activities.” (p.375). Drake’s (2015) paper too refers to emails in the round – what prompted her to write her paper was a “cache” or “genre” of emails that had a shared sense of powerlessness and anger and that also jointly made her feel misrepresented and wrongly positioned in her new role as an academic leader.

Between them, these two papers made me aware that what I was thinking about was not 12,000 to 14,000 undeleted emails in each year – it was how email as a continuous and shared process was affecting me as an individual and also the people I worked with collectively. I decided to capture my thinking as I attempted to undertake the first stages of the “impossible” task. I transferred the emails from my in-box to a folder entitled 2014-15 – itself quite a time-consuming task – and at the same time audio-recorded my impressions as the email titles passed my eyes. I then replayed the recording to allow me to identify key “meanings” of email from the year I had looked at. These are captured in the section below.

Impressions from a year’s emails

As the emails passed my eyes while I gathered them, I noticed that I spoke more about my own habits, weaknesses and tendencies than about their content. However, there are a couple of lists of content that show how many disparate and seemingly random themes present themselves in an exercise such as this. I also noted the absence of some emails I would once have found. I became very aware of politeness conventions and respect for friends, but also a concern about the mix of work and other emails. Within work contexts, there are still many phatic messages – “thank you Christine” – that seem to be polite but also tell me that everything necessary has been completed. There are observations about the techniques senders use to attract attention. The overwhelming impression (as anticipated) was an emotional one – guilt about not doing things “properly” with respect to answering and controlling email. I drew an analogy with a physical equivalent (keeping things in the attic) and found this to be generative in terms of thinking about changing my attitudes to email. I have taken some quotations and reflected further on the implications using CHAT to guide me.

The result is impressionistic and emphasizes an emotional response to the email corpus rather than a scientific approach. Using my own responses helps in avoiding some of the more tricky ethical implications of categorizing and perhaps citing emails that involve a range of people in my own institution and beyond. Yet it does not obviate all of the ethical dilemmas, as it is clear that I am critical of institutional and national strictures on academic time and practices. The fragments of my impressions selected are neither objective nor

complete; I have found them useful, however, for highlighting the illuminating effects of a CHAT perspective on email .

Short quotations from my recording are:

1. I haven't taken sufficient trouble to learn how to do the email housekeeping I should be doing.
2. It's a huge mix...
3. Messages about [new] emails are now sliding in and making a noise to let me know they're here – they're very insistent.
4. Our email system changed ...
5. I've cut myself off from some mailing lists
6. At least I have a record of my dealings with them [PhD students]
7. I started to realise I'm a contributor to this deluge as well
8. I'm going to write about my father who never used email but had similar [hoarding] tendencies to mine

These are elaborated in the following section.

Email in the frame of CHAT

1. I haven't taken sufficient trouble to learn how to do the email housekeeping I should be doing.

There were several comments early in the recording about my guilt at having amassed such a huge collection in four years. I have never properly archived email in over 23 years of using email; my "system" has always amounted to answering email immediately and deleting bits periodically. This broke down about a year ago when I discovered I did not have time to deal with email immediately and had to resort to flagging or marking as unread. I had thought that the archiving process would be relatively quick and simple, but as is often the case with first use of technology, it was not intuitive.

In terms of the activity system of higher education, the action of filing does not make a major contribution to my own engagement with the motives of education of students and scholarship associated with digital education. It is interesting that the division of labour that once separated out the more administrative functions in a university began to change in the 1980s and 1990s when practitioners began to do their own typing and document keeping. Copies of memos would once have been filed by administrators and available for consultation. This ancient history does not excuse my poor email filing, but the distance from my own major motives and goals offers an

explanation. Combined with the time required to learn how to do it properly, the result is two time-consuming sets of actions that distract me from what I see as more pressing ones. In other words, the work I am doing now might once have been done by two or more people. There is no time in our workload model for the extensive filing exercise I intended to do.

My previous approach of “dealing” with email immediately suggests something that has been operationalized. I automatically open emails marked as new – that is done without thinking. Once I could take action on them: now I sometimes have to reflag them, creating a new “trigger” for action, but it works in a different way. What was once an almost synchronous response (on seeing the email) has now become more asynchronous.

2. It's a huge mix...

... of notifications, the need for compliance (possibly less than I might have thought), and I'm starting to recognize names of people who've sent me emails in the past who I've since got to know more closely, ... contractual details from publishers...As things pass I can see I've missed ...participating in interesting events, I see exclamation marks because people are wanting to really draw attention. There's a mix of a sort of politeness. ...

There was less emphasis on content in my comments than might have been expected from my self-imposed goal of finding out about the content of my emails. As well as the above list, already interspersed with other more “process” type comments I noted a few personal and political messages, some nagging ones from academic and professional networks such as Linked In and ResearchGate and many messages from apps I'd signed up to such as Scoop-it and Pinterest which I did not have time to follow up.

Further reflection on content, which I did not comment on directly in the gathering exercise, is that many of my messages are conversations with a couple of close colleagues, and I frequently do a search under these people's names in order to locate some important information. I am interested that this did not really feature as significant in my gathering up process. I suspect it is because I was more alerted to annoying or alarming messages.

The observation on there being less call for compliance that I had suspected is also interesting. There are indeed some messages that do this, but they loom large in my mind – and other observations (see especially number 6 below) suggest that I self-regulate for this anyway. In this way, I have internalized the dominant culture.

Taken together with my first quote above, the impression is that many of the disturbing emails are attempts to influence my attitudes to what higher education teaching and research should be – things that are trying to “sell” me an approach. The ones that I did not particularly react to but have identified as valuable are those that offer resources that will help me with my tasks – from

people who have taken similar actions in the past. Crucially, they are from people who share my understanding of the object of our collective activity.

3. Messages about [new] emails are now sliding in and making a noise to let me know they're here – they're very insistent.

I became aware of the increasing insistence of signs to attract attention and the need for us all to be able to control our own attention in the face of this (Rheingold, 2012). If Vygotsky were still alive, he might see this as a tension between the stimulus-response mechanism and higher order socially-mediated thinking.

Persistent and insistent distractions depend on our willingness to respond automatically to a signal: my operationalized response to immediately open emails now needs attention as it is becoming oppressive. I have already imposed a ban on myself from keeping email-bearing devices in the bedroom and from looking at it after 9 pm. When I am successful with this, it has helped sleep. It is also necessary to consider what has been operationalized here when email does interrupt sleep; it means that contact from students and staff is acceptable at any time of day or night. (See also point 7 below.)

4. Our email system changed ...

Structural and technological changes have an effect on the activity system that can often be hidden – new systems may change what is allowed in unseen ways, both positively and negatively. They may introduce new tensions and contradictions, and change routes to achieving goals and objectives. An advantage of changing a system, however, is that it is an opportunity to bring such differences to the surface and see any adaptations at the point that they are made – with the associated opportunity to determine what should be valued. In this case, the new system highlighted the need for consistency and control across a huge organization and raised questions about the role of external technology providers in determining the communicative functions within a university (which is too big a topic to pursue here but does indicate an intersection of activity systems – commercial and academic).

5. I've cut myself off from some mailing lists

The exercise produced a number of observations about loss. One result of being potentially overwhelmed by email has been to cut off some of the supply, including some that was previously valued and more associated with my own view of our collective object.

I have also seen how the wish to cut off has resulted in students not receiving essential messages. They have not accessed their student emails because of what they perceive as spam associated with them. This is a key problem for universities, especially with online students. The email, far from mediating, is a source of noise in the system. Some writers see this as a sign for the need for new collaborative tools (Rao, 2015).

6. At least I have a record of my dealings with them [PhD students]

The full quote from which this was taken is:

As I work through all this I'm seeing messages come up from my PhD students, they always give me a little qualm – is this something I've followed up appropriately? At least I have a record of my dealings with them and that can be important for compliance with recording for management; and this is why I don't throw out many emails because we're expected to comply with so much and expected to know when we've seen people, but as soon as we've seen people rather than recording it we're moving on to the next task or answering the next email

The reason for qualms over my doctoral students is that I know that they may (or should) have something for me to think about. When writing up my notes on them, their emails remind me of the timing and themes of our meetings. I have to record that they are all “engaged” each month, in order to meet Border requirements for some students. The University aims to treat all students the same way, so any such requirements have to be met for all students. This is an instance where two activity systems – university and border control – intersect and affect each other, with implications for practitioners.

While the email corpus here serves as an extension of my memory for this purpose, it also contains examples of some emails generated when I have not complied, through an oversight. I try to avoid getting these – it means additional emails have to be sent and received.

7. I started to realise I'm a contributor to this deluge as well

This reflection, which follows from the one above, is suggested several times. I first realized this around 22 years ago when a colleague complained that an email I'd sent to the whole university had interrupted a train of thought through an alert sound. Rules governing Email systems have evolved to ensure that few people are allowed to send messages to the whole university or even whole groups – there are gatekeepers for such messages. While this is understandable, it allows for additional unintended consequences and positioning of people as those who can and cannot instigate a message chain.

My main point here is that I am a part of the activity system and should not just see myself as a victim of it. The email system, which can also be regarded as an activity system in its own right, is sustained through the exchanges that continually transform it. My own contributions play a small part in the internalization and externalization processes that lead to change. Undertaking this exercise has led to my questioning and deciding to regulate some of my own actions within the activity of emailing.

8. I'm going to write about my father who never used email but had similar [hoarding] tendencies to mine

As I looked at the emails I had amassed, I was starting to formulate an impression of what I wanted to write about. I realized that there was a strong analogy between my planned filing and tracking and what I have been doing over six years or so in tidying my late father's study and loft, on monthly visits to the family home. My father was an academic before the advent of email. He kept papers, though – and they quickly got out of control, along with many household articles, clothes, furniture, gifts, empty boxes, photographs... the list is about as long as my categorization of emails would be. His collection also included some artefacts from his own parents, my mother's family, and my stepmother's own artefacts are also there. In sorting out his things, I have to look out for genuinely useful or valuable items of information or artefacts – taking into account emotional responses from my stepmother and myself. It has been a fascinating process, mingled with sadness and joy. There are still treasures to be found and their disposal is difficult because of the emotional ties. I have found various futile attempts at filing and recording, including in some of his (obsolete) computers; they all defeated him.

My overwhelming thought with respect to my father's own relationship to these items is that they were a burden to him and he would not have been able to find anything important, except for those things that he would have positioned very carefully in obvious places. The volume of "stuff" made him feel burdened with tasks, but these were tasks of controlling and accounting rather than the more mathematical and pedagogical ones he enjoyed. His problems were very similar to mine, and might similarly be considered by drawing attention to the objects of different activity systems.

Conclusion

The main tenets of CHAT across three generations can throw some light on the themes raised here. The study highlights the transformation of email from a useful alternative tool for communication to a shaping medium with hidden effects.

From Vygotsky's foundational work on the social basis for development of higher mental functions through processes of internalization and externalization, we are reminded that our use of email is a collective practice to which we contribute as well as internalize. Those of us who use email as a mnemonic device, for example, should aid others who do the same, perhaps by offering clear subject headings.

Leont'ev's tristratal model of activity provides a vocabulary that helps us to consider how we operationalize and automate intentional human actions within our tools and mediating artefacts. Our email exchanges embed the intentions of others, though these may be implicit or hidden and are open to interpretation as we internalize them. But our personal internalizations become externalized in our continuing use of email and contribute to the

collective practice. 14,000 unarchived emails may well be evidence of an individual's poor "housekeeping", but also indicates a change in division of labour and a culture of competing pressures on time. Additionally, a repeated theme through the paper is the need to recognize that work can be rendered invisible through processes of operationalizing and loss of a sense of duration. Sending a single email to a worried student can involve hours of unrecognized academic and pastoral labour. I have recently made this observation in an email to management.

Engestrom's recent and contemporary work on activity systems – which emphasizes collective implications and also the boundaries within and across systems – suggests the value of collaboratively identifying contradictions and tensions that lead to expansion of an activity system. Contradictions around emails indicate an activity in need of renewal – for higher education to work effectively, its participants need to resolve problems caused by the internalization of potentially harmful practices. Thus rather than an individual academic counting or measuring the effect of an overabundance of emails, the study suggests that a more useful approach is to work collectively. That way we might identify not only what is hidden but also what may be contributing to our shared feelings of stress and oppression as our academic identities are being eroded in favour of a market-driven activity system that aims to record and measure and optimize the use of academics' time.

An attic full of artefacts, many of them print based – but also including items from a period of increasing production, consumption and regulation in the domestic sphere – suggests an inability to cope with 20th century accumulations of material objects associated with an academic life. Similarly, an overburdened inbox represents a 21st century collation of digital artefacts that have meanings we may not yet fully understand.

Acknowledgements

The author is extremely grateful to the editors of this special edition – Sarah Hayes and Petar Jandric – for their patience, encouragement in the face of despair, and helpful suggestions for improving this paper.

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